

101. A configured computer program storage medium which contains software to perform method steps for flexible data mirroring, the method comprising the following steps:

- transmitting data from a host to a local mirroring unit over a standard storage subsystem bus while the local mirroring unit emulates a disk subsystem;
- transmitting data from a local mirroring unit over a journey link to a remote mirroring unit using at least one of Ethernet packets and TCP packets; and
- transmitting data from a local mirroring unit over a journey link to a serverless remote mirroring unit.

Note that claim 101 as amended has the same scope as claim 102 as originally filed. That is, the same claim coverage could have been achieved by canceling claim 101, placing claim 102 in independent form, and amending the dependent claims to depend from claim 102 instead of claim 101. Amendment of claim 101 as done here is simply easier from an administrative point of view. The undersigned respectfully submits that amendment of claim 101 therefore should not be deemed a narrowing amendment for estoppel purposes.

Section 103 Rejection Failure: References Improperly Combined

The Office Action relies on an improper combination of references. The combination of U.S. Patent No. 5,812,748 ("Ohran") with the Double-Take reference is improper for at least two reasons.

First, the Office Action fails to provide evidence of a suggestion or motivation in the prior art for combining the references. Such evidence must be provided for an obviousness rejection to be properly made. But the only grounds advanced to support the combinations are the Examiner's statements. On page 3 the Office Action asserts that it would have been obvious "to use any combination of the characteristics above because they would all improved [sic] the data mirroring system." This is **not evidence** of a motivation or suggestion in the prior art, but is instead an unsupported and conclusory statement of advantage which is improperly based on hindsight. Similarly, on page 4 the

Office Action asserts that it would have been obvious to combine three references “because it would have enabled efficient transparent disk mirroring.” Again there is **no citation** to a motivation or suggestion in the prior art; there is only a conclusory assertion that the combination provides some advantage.

If the simple fact that an invention would have been advantageous before its actual conception is enough to render it obvious, then very few inventions are patentable. Most inventions could have been put to beneficial use earlier if they had been invented earlier. The proper question is not whether the claimed invention provides a particular advantage, but is instead whether it does whatever it does in a way that was not obvious at the time of invention. An advantage of an invention which becomes apparent *after* reading the claims is not evidence showing a suggestion or motivation **in the prior art at the time**. Retroactively defining the motivations of one of skill at the time in terms of advantages which are only now appreciated is not proper. “Defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.” Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH, 45 USPQ2d 1977 (Fed. Cir. 1998).

Even if the advantages noted by the Examiner are provided by the invention, they do not justify combinations that are based on use of the claims as a blueprint, which is apparently what occurred. The Office may not use the claims as a blueprint; *see, e.g.*, Grain Processing Corp. v. American Maize-Products Co., 5 USPQ2d 1788, 1792 (Fed. Cir. 1988). **Even if a office action identifies every claim limitation somewhere in the art, that is not enough to support an obviousness rejection – the cited combinations must also be support by evidence of a motivation or suggestion to combine the references.**

Applicant reserves the right to discuss proper obviousness analysis in greater detail, with respect to any or all cited combinations. In such a discussion, and in a review of the rejections, judicial explanations of obviousness analysis, such as the following from In re Dembiczak, 50 USPQ2d 1614 (Fed. Cir. 1999), may be helpful:

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing “teaching or suggestion or motivation [to combine]” as an “essential evidentiary component of an obviousness holding”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them”); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination “only by showing some objective teaching [leading to the combination]”); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion “essential” to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court’s conclusion of obviousness was error when it “did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination”). *See also [Graham v. John Deere Co.]*, 383 U.S. at 18, 148 USPQ at 467 (“strict observance” of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. *See, e.g., Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985) (“The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.”).

In short, the Office Action does not meet its burden, and has not made a *prima facie* case. No factual evidence of specific suggestions in the art were given to justify the cited combinations. Without the necessary factual evidence of a suggestion or motivation for making the combinations at the time, the combinations are not proper. The rejections should therefore be withdrawn.

Second, the Office Action’s combination of Ohran with the Double-Take reference is improper because the combined technologies would apparently conflict with each other, making the combination inoperative. Page 12 of the Double-Take reference identifies a “Double-Take Source Module” and a “Double-Take Communication Module”. Figure 5 of Ohran identifies communication means attachments 2115 and 2125. Because these

components (Double-Take modules, Ohran attachment) would be competing for data in a system according to the combined references, the Ohran and Double-Take technologies are apparently incompatible. A proper combination of these references would acknowledge this apparent incompatibility, and would address it with at least some technologically plausible resolution that permits the combination to operate, if indeed such a resolution exists. Meanwhile, the current rejections should be withdrawn because the Office Action fails to address the apparent inoperability of the Ohran/Double-Take combination.

Section 103 Rejection Failure: Claim Limitations Improperly Ignored

Proper rejection of a claim must address each limitation of the claim – claim limitations may not be ignored. But the Office Action fails to address many limitations of the claims. For this reason, the rejections should be withdrawn. Some of the claim language that is not adequately addressed by the Office Action is noted below.

Claim	Claim language not adequately addressed
1	"system mirrors data from a host through a local mirroring unit toward a remote mirroring unit without requiring on the host any software that is designed specifically for remote data mirroring"
1	"system mirrors data from a host through a local mirroring unit which operates as a TCP client over a journey line to a remote mirroring unit which operates as a TCP server"
1	"system mirrors data to a remote mirroring unit without requiring the use of a remote server attached to the remote mirroring unit"
27	"each of the local mirroring units having a spoof packet generator and a nonvolatile data buffer for mirrored data"
46	"each local mirroring unit generating pre-acknowledgements indicating storage of mirrored data in a nonvolatile data buffer of the local mirroring unit"
101/102	"the method comprising the following steps: transmitting data from a host to a local mirroring unit over a standard storage subsystem bus while the local mirroring unit emulates a disk subsystem; transmitting data from a local mirroring unit over a journey link to a remote mirroring unit using at least one of Ethernet packets and TCP packets; and transmitting data from a local mirroring unit over a journey link to a serverless remote mirroring unit"

Many other claim limitations are also effectively ignored, especially in the dependent claims. It is not adequate to assert, as the Office Action does with regard to claims 28-45 and 102-109 *en masse*, that all limitations of numerous claims “would have been readily apparent” or are rejected under a “similar rationale” because a rejection must match claim limitations to the art. Moreover, claims 76-88 do not receive even that cursory attention – they receive no analysis in the Office Action.

Each claim must be considered, and the rejections must address each limitation of each claim. Otherwise, the rejections effectively ignore claim limitations, and they are therefore improper. *Cf. Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 3 USPQ2d 1321, 1324 (Fed. Cir. 1987).

Note also that to the extent the Office Action was meant to take official notice of the content of prior art, pursuant to M.P.E.P. § 2144.03 the Assignee hereby respectfully asks the Examiner to provide evidence in the next office action supporting such notice. For instance, the following Office Action assertions might have been meant as assertions of official notice:

Page 2: “it is apparent that the wide area network uses TCP/IP”

Page 4: “As per claims 28-45, 102-109, the limitations recited would have been readily apparent to one of ordinary skill”

The Examiner is also respectfully asked to identify all instances of official notice, if any such exist, so they can be seasonably accepted or challenged by Assignee.

Additional Comments

On page 2, the Office Action treats “non-invasive” as though it means “compatible – invisible to user and to applications”. This misunderstands the claim language. Claim 1 recites “a non-invasive characteristic by which the system mirrors data from a host through a local mirroring unit toward a remote mirroring unit without requiring on the host any software that is designed specifically for remote data mirroring”. Thus, the question to be asked is not whether software on the host operates invisibly to users and applications, but is

instead whether it is necessary to put on the host software that is designed specifically for remote data mirroring.

On page 3, the Office Action asserts that it is well known to use SCSI, fibre channel, and USB for a storage subsystem bus. Assignee agrees, but that is not the end of the analysis. To properly reject the claims, the Office must show not only that these types of bus were used, but that they were used in combination with the other claimed limitations, or that it would have been obvious to do so. That has not been shown.

As noted above, the Office Action fails to provide any analysis of claims 76-88.

Summary

The rejections should be withdrawn because the Office Action fails to show evidence in the prior art of a suggestion or motivation to combine the Ohran and Double-Take references.

Moreover, the rejections should be withdrawn because the Office Action fails to address the apparent inoperability of the Ohran/Double-Take combination.

Moreover, the rejections should be withdrawn because the Office Action overlooks limitations of independent claims, fails to address the limitations of dependent claims, and provides no analysis of claims 76-88.

In view of all this, Assignee respectfully submits that the pending claims are allowable. Assignee's silence here does not signify agreement or acquiescence in the Office Action's assertions, and Assignee reserves all arguments.

If any questions remain, the undersigned welcomes a telephone conference or other communication from the Office.

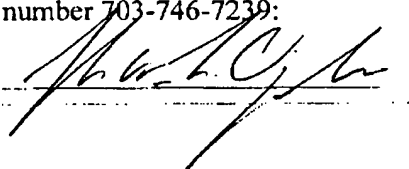
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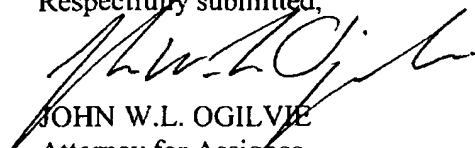
CERTIFICATE OF FAX

TRANSMISSION

I hereby certify that this Amendment is being faxed to the United States Postal Service on October 28, 2002, to the number 703-746-7239:



Respectfully submitted,



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